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TECHNOLOGY DEPT.

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE - MAY 12, 1945



Added Power
See Page 296

A SCIENCE SERVICE PUBLICATION

Japs—Fear—Island Fighting Weapons—Survival—Psychology

★ THE JAP SOLDIER . . .

in text and accompanying photographs tells how the Jap has been brought up and what he has been taught to believe, about his pre-induction training and how he fits into the Japanese military system, and about his fighting qualities as reported by accredited observers. This book was prepared by Major Arthur Goodfriend and is an adaptation of a training film strip produced by the Army Service. Time, Inc. and Wilfrid Fleisher cooperated in the preparation. 124 pages, with every other page a photograph. Fighting Forces edition, 25c.

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is the story of units of the 7th Infantry Division in their successful fight to wrest the southern part of strategic Kwajalein Atoll from the Japs. The battle story is given in a series of official interviews with all the men who fought, giving an entirely new kind of military history which comes as close to the whole truth about battle as is humanly possible. Illustrated with over a hundred maps and photographs, with an appendix which explains the method of getting interviews after battle. 213 pages. Fighting Forces edition, 25c.

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a manual prepared by the Airlines War Training Institute gives practical and valuable advice to men forced down, or adrift or to men who have to live in odd parts of the world. This book tells among many bits of useful knowledge, what to eat and what to avoid eating, how to build shelters, how to get along with native people, how to treat illnesses, how to find direction without a compass, and most important, how to keep one's mind in shape during periods of disaster. 376 pages, 177 pictures with a complete bibliography. Fighting Forces edition, 25c.

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by Captain Melvin M. Johnson, Jr. and Charles T. Haven is a history of American arms from the "Kentucky" rifle of the American Revolution to the modern agency of moving firepower, the airplane. The authors drive home the necessity in the future for American preparedness in new weapons and equipment. No longer can we go into war as we have in the past with a small force of regulars, armed with obsolete weapons. A hard-hitting, plain-spoken book of 152 pages. Fighting Forces edition, 25c.

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B.254

BACTERIOLOGY

Bacteriophage Now Visible

This foe of disease germs, formerly invisible, has now been seen through an ordinary light microscope as bright yellow pinpoints of light.

► BACTERIOPHAGE, formerly invisible foe of disease germs, has now been seen through an ordinary light microscope, Dr. Alvin W. Hofer, of the New York State Agricultural Experiment Station, and Dr. Oscar W. Richards, of the Spencer Lens Company, Buffalo, report. (*Science*, May 4.)

When the electron microscope made it possible to see bacteriophage particles, scientists found that they were larger than the flagella of bacteria. Since the flagella, tiny whip-like affairs extending from bacteria, can be stained and seen under ordinary light microscopes, it seemed reasonable to suppose bacteriophage particles could, too.

This has now been done. First the bacteriophage was treated with auramin, a

dye, and radiated with ultraviolet rays. The bacteriophage particles then appeared through the microscope as bright yellow pinpoints of light in an otherwise dark field. With further study, Dr. Hofer and Dr. Richards developed two more methods for making bacteriophage visible. These involved the use of stains, or dyes, one a modification of the acid-fast stain, and ordinary light.

With these methods and use of the new phase difference microscope, the scientists were able to work out the order of events in bacteriophage destruction of bacteria. The sequence agrees with that seen in a dark-field motion picture, made by Dr. A. J. Pijper, of Pretoria, South Africa, showing bacteriophage action on a strain of typhoid fever organisms.

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LENSES COATED—Mounted on a rounded panel inside a large bell jar, lenses for naval combat instruments are given a coating of magnesium fluoride in the optical shop at the Mare Island Navy Yard, Vallejo, Calif., to improve their light transmission and field definition characteristics. Jim DeMartini, chemist, is checking the thickness of the coating.

ods, about which there is nothing new. Other parts, such as rivets, rubber, and so on can also be salvaged.

The chemical stripping of aluminum from wrecked planes makes possible the conservation of the country's high-grade bauxite reserves and man-hours required to mine bauxite. If this process had been available at the time of the scrap aluminum drive in 1942, when housewives turned in to the government their aluminum pots, pans, and skillets, those cooking utensils could have been processed and used in aircraft construction. As it was, they were of little value, since the large number of different mixtures and alloys of aluminum used in cooking utensils made it impossible to identify and sort the vast quantity turned in. Most of this material was melted down into low-grade metal.

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METALLURGY

Airplanes Dissolved

Whole sections of wings and fuselage are placed in a bath of caustic soda to speed up recovering of valuable aluminum from obsolete planes.

► RECOVERING valuable aluminum for re-use from crushed war-weary, crashed, or obsolete planes has been speeded up by a new process that literally dissolves the aluminum from whole sections of these planes. This new method, developed by the Aluminum Company of America in cooperation with the Air Technical Service Command, eliminates all need for sorting metals before the aluminum is melted down and gives an end product of pure, high-grade aluminum ready for reprocessing. The aluminum obtained from alloys and other metals coated with aluminum is for all intents and purposes the same as aluminum manufactured from bauxite.

Whole sections of wings and fuselage are placed in a bath of caustic soda. This caustic soda dissolves the aluminum in the planes, while any steel nuts and bolts, rivets, copper piping, bronze bushings, rubber or other non-aluminum parts are not attacked by the caustic and remain

in solid form. Aluminum alloying elements are not attacked by the caustic, and as is the case with other non-aluminum parts they can be removed readily from the sludge. Thus scrapped planes are taken apart quickly by chemicals, instead of by tedious hand labor.

After filtering out the solid impurities from the sludge, the aluminum bearing liquor is transformed into pure aluminum oxide by the Bayer process. This is accomplished by pumping the liquor into precipitating towers as high as six-story buildings and allowing it to stand and cool. In time, crystals of aluminum hydroxide begin to settle out. These crystals are removed and washed to free them of caustic soda. Then they are heated white hot in large rotating kilns to drive off any moisture and leave commercially pure aluminum oxide, or alumina. The caustic soda recovered can be re-used.

The aluminum oxide can be processed into any desired form by standard meth-

MEDICINE

Refrigeration Treatment For 89 Days Saves Leg

► REFRIGERATION treatment for 89 days continuously saved a woman's leg from the amputation that would ordinarily have been required to save her life, Dr. Isidor Kross, clinical professor

of surgery at New York Medical College, reports. (*Journal, American Medical Association*, May 5.)

The patient had suffered from a chronic osteoarthritis of her right knee for four years. A few days after warming her feet near an oven, a blister opened by itself and discharged a yellow, watery fluid. Shortly thereafter almost the whole leg became involved in a serious infection and gangrene set in.

Sulfadiazine failed to help and had to be stopped because a rash developed on the patient's arms and face. At this time her doctor advised amputating the leg through the middle of the thigh to save her life. Dr. Kross, called as surgical con-

sultant, believed the operation should not be done, as it would involve cutting through infected tissue. Either gangrene of the stump or general poisoning seemed likely to result. Refrigeration treatment was tried, with success.

The 89 days during which the low temperature treatment was carried on is the longest on record for such treatment, Dr. Kross believes. He reports the case for this reason and because he found that when the treatment was stopped after shorter periods, the inflammation and gangrene started up again. The case, he states, shows the necessity for continuing the treatment until the infection is fully overcome.

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enheit (which might be encountered on a desert) to minus 90 degrees Fahrenheit (a temperature sometimes experienced at high altitudes). These gyros can operate at all altitudes up to 40,000 feet and can run for 1,000 hours without servicing.

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Some plants flower only when the daily period of illumination is relatively short—that is, when the days are short and the nights long; when the light periods are long the plants remain vegetative.

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AERONAUTICS

Automatic Take-Offs

High-precision gyroscopes may make completely automatic flight, including take-off and landing, a reality within a short time.

► **HIGH PRECISION** gyroscopes can hold a plane on its preset course more accurately than a human pilot, and it is possible that within a short time completely automatic flight, including take-off and landing will be a reality. Flights have already been made with a gyroscopic device that permits automatic control of turns, banks and other aerial maneuvers, reports the General Electric Company.

All this means that one day you may be able to sit down in the cockpit, throw a few switches and set a dial or two, turn over the engines then lean back and let the plane fly itself. The gyroscopes that may make this kind of flying a practical reality are the same as those that are being used on ships and in certain types of aircraft instruments today and in war they direct torpedoes to their targets. Essentially, they all consist of a wheel, or a body, mounted on a shaft and arranged to be spun around at great speed. The first instrument built around a gyroscope was constructed in 1744, the report states.

One of the most recent uses for gyroscopes is in computers for aerial guns on the Boeing B-29 Superfortress and other aircraft. Here they help calculate the factors between the gun and the target, determining how far ahead of the enemy plane the gunner must shoot to have the bullet hit the fast moving target in space.

Regardless of gravity, magnetism or the earth's rotation, the gyroscope main-

tains a fixed direction of the spin axis. It resists any attempt to change its direction while spinning. When a plane or ship deviates from its course, the gyroscope, mounted horizontally, still points in a pre-set direction, permitting the automatic calculation of how far the craft is off its course. This is the principle of the airplane's directional gyro. Another gyroscopic device tells the pilot whether he is nosing up or down, even when he may be traveling through thick clouds and unable to see the horizon.

Indicating information such as this makes the gyro adaptable to robot devices for completely automatic flying. In such an installation there would have to be several gyros, each designed to do a special job. For example, when a plane gets off its course or is not in straight, level flight, the gyro would sense this and send an electrical message to an amplifier, where the message is converted into greater electrical energy and sent on to a power unit, such as a servo motor, that will move the controls and bring the plane back to its proper flying position and correct course. All this can be accomplished without any attention from a human pilot.

While some types of gyroscopes are spun by air, most of those in use today are electrically driven. Electrically-driven gyros are not limited by extreme altitudes and temperatures, and will operate satisfactorily from plus 160 degrees Fahr-

MEDICINE

New Type Blood Bank

Lives of mothers and babies will be saved by a new kind of blood donor's club. Members will all have Rh negative blood.

► MOTHERS and babies threatened with death because of a difference between the mothers' and fathers' blood will be saved through a new kind of blood donor's club being formed through the Paterson, N. J., Board of Health and the Passaic County Medical Society.

Creation of this unusual, if not first and only such club is reported by Dr. Frederick P. Lee, Miss Anna I. van Saun and Miss Evelyn L. Brown, of the Paterson Board of Health. (*Journal, American Medical Association*, May 5.) Miss van Saun is director of the Board of Health's laboratories.

Members of the club will all have Rh negative blood. Their names and addresses will be on file at the county medical society. Then when an Rh negative mother gives birth to a baby whose father is Rh positive, the doctor will know where to find blood to save the baby and perhaps the mother, too, without having to send out a call over the radio and through the newspapers.

The baby of an Rh positive father has Rh positive blood, but, before his birth, this sets up antibodies in the blood of his Rh negative mother which cause trouble, sometimes fatal, for both. The antibodies destroy the Rh positive blood in the baby's body. Doctors try to save the baby by replacing this with repeated transfusions of Rh negative blood which will not be destroyed by the antibodies. The mother may also be sick and need a blood transfusion after the baby's birth. She also must receive Rh negative blood.

The Paterson health department got into this unusual field at the request of the medical society. One of the largest hospitals in the city could not take on the job of making Rh tests for its blood bank. So the health department started doing it on all blood sent to it for premarital Wassermann tests and for Wassermann tests on expectant mothers. Lack of testing serum forced the health department to abandon the test on the

premarital blood specimens, but it is being done on the blood of expectant mothers. About 15% of these have been found Rh negative.

When the test shows the expectant mother's blood is Rh negative, the obstetrician is asked to request a sample of the husband's blood for testing. All but two husbands have cooperated. Of 98 tested, 80 were Rh positive and 14 Rh negative.

"Prospects for an Rh negative woman to secure an Rh negative husband are not very brilliant, it would seem," the scientists comment.

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ENGINEERING

Aluminum Lifeboats Improve Ship's Stability

► A NEW aluminum lifeboat that weighs less than a wood boat and only half the weight of a steel boat of the same capacity has been approved by the U. S. Coast Guard for use on American merchant ships. It is resistant to action of such corrosive agents as salt spray and because of its lightness reduces the weight installed on the upper decks, thereby improving the stability of the ship.

Lighter-weight davits may be employed to handle the aluminum boat than those required for a steel or wood boat of the same capacity, since when loaded with the same sea rescue equipment, it weighs less than two and one-half tons. Most standard lifeboats weigh more. The equipment carried includes oars, seats for a large number of men, an axe, provisions for sustaining survivors until they are rescued, and may have an in-board motor.

Experimental lifeboats were built of aluminum over ten years ago. In 1938, one steamship company installed them on one of its craft, with good results.

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PHYSICS

High Vacuum Research Fellowship Established

► A GRADUATE fellowship in high vacuum research has just been established at the Massachusetts Institute of Technology with funds donated by the National Research Corporation of Boston. An initial grant of \$2,500 has been made. It is expected that the award will foster interest in new processes performed under high vacuum in the fields of chemistry, physics, metallurgy, and chemical and mechanical engineering.

Science News Letter, May 12, 1945



INCREASES STABILITY—The new aluminum lifeboat weighs less than other boats of the same capacity and is resistant to the action of such corrosive agents as salt spray. Because of its lightness it reduces the weight installed on the upper decks, thereby improving the stability of the ship.

ASTRONOMY

Eclipse Due July 9

Practically everyone in the United States will be able to see a portion of the sun blotted out by the moon. Total in Idaho and Montana.

► PRACTICALLY everyone in the United States will be able to see a portion of the sun blotted out by the moon on July 9. People who live in the West and Southwest, however, will have to get up pretty early, as the sun will rise partially eclipsed. People living in the East will have a chance to see the moon cover a section of the sun after it has risen.

A few in northern Idaho and Montana will be lucky enough to see the sun entirely hidden. It will rise completely eclipsed for observers in Cascade, Idaho, not far from Boise, and inhabitants of Butte, Mont., probably won't have to go farther than to a nearby field to see the total eclipse.

This is the first time since August, 1932, that the path of a total eclipse of the sun has been traced over territory close to our homes. Thirteen years ago the path of such an eclipse crossed New England.

The tip of the shadow of the moon will fully reach the ground just as the sun is rising for people in Valley County, Idaho. Sweeping over Butte, where the total eclipse occurs quite early in the morning, it travels northeastward, crossing into Canada. Racing across Saskatchewan and Manitoba, the eclipse will last about 48 seconds on the shores of Hudson Bay.

At Scoresby Sound, on the east coast of Greenland, mid-totality will occur near noon. The total eclipse will be longest here, reaching its maximum of one minute 16 seconds, according to the Nautical Almanac Office of the U. S. Naval Observatory. Here the path will have its greatest width, about 58 miles, when the sun will be a little over 42 degrees above the horizon.

From Greenland the path of the shadow of the moon will go to Norway, Sweden and Finland, where the eclipse will last about a minute or more. In the USSR the path of the eclipse will pass over many well-populated regions where mid-totality will occur either in the late afternoon or toward sunset. The sun will set totally eclipsed in Turkestan.

The eclipse will last about two hours and 27 minutes from the time the sun rises eclipsed in Idaho until the sun sets eclipsed.

One-half to four-fifths of the sun will be blotted out for observers in the British Isles, while in Iceland only 8% to 14% of the sun will be visible during maximum eclipse. A part or all of the sun will be covered by the moon's shadow for war workers in North America, flyers and sailors in the North Atlantic Ocean, natives in the North Polar regions and fighters, both allied and enemy, over all of Europe.

The nearer the spectator is to the path of totality, the greater will be the amount of the sun that is hidden from him. Some who are in the regions far from the axis of the shadow which lies on a direct line with the moon and the sun will see only a small portion of the sun covered. The diagram shows the southern limits of the partial eclipse, and the path the total eclipse will take.

An eclipse at any particular point can never be total for longer than seven and a half minutes, and this duration can occur only at noon near the equator. The average total eclipse lasts only about two or three minutes. Although the total phase of the July eclipse has a shorter duration (lasting about one and a quarter minutes at most) and narrower path than the average total eclipse, the path passes over much land area and gives many peoples a chance to enjoy its beauty. It fortunately occurs at a season when weather conditions are in general favorable.

Many professional and amateur astronomers here in the United States have considered the possibility of going to Canada to study the eclipse. Due to the inaccessibility of the Hudson Bay region, points on the path in other parts of Canada are the best from which to view the eclipse. Some have selected Pine River, Manitoba, as a likely place even though totality there will be brief, because of its accessibility by rail or car. The government's request that civilians do only essential traveling, however, has kept many such plans from materializing.

Great interest in the eclipse has been reported in the Scandinavian countries and the USSR. Despite war, preparations are already underway to locate a number of observation stations along its path through Norway, Sweden, Finland and Russia.

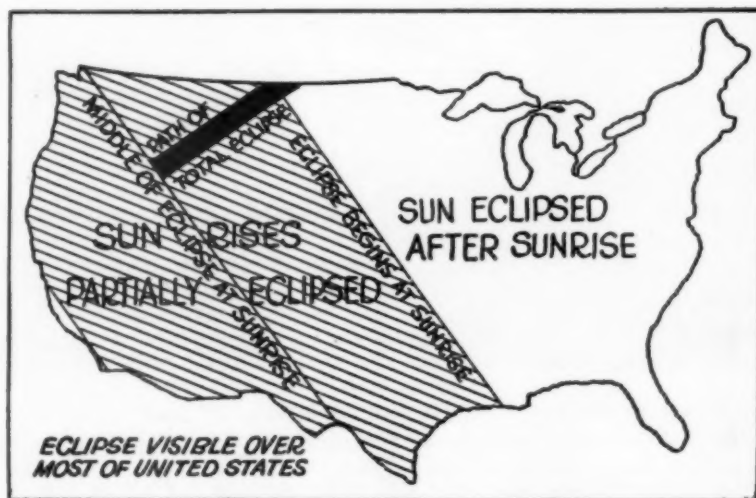
A number of problems to be investigated have been outlined by Prof. Bertil Lindblad of the Stockholm Observatory. They are largely astrophysical, dealing with the flash spectrum and the polarization of the light of the corona.

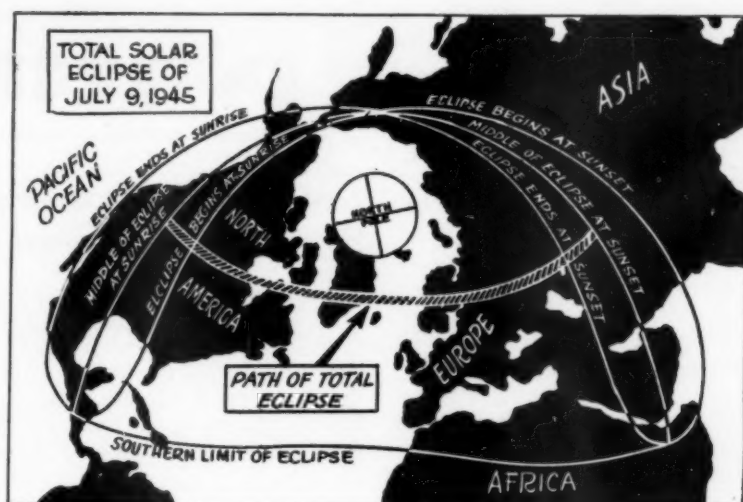
Of particular interest are plans for astronomical-geodetic work which would require international cooperation and accurate observations all along the path of totality. The coming eclipse is believed to offer an excellent opportunity to determine accurately the distance between points in Canada, Greenland and Europe.

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Beetles and humans have similar likes and dislikes for sweet- and sour-tasting foods.

Copper sulfate, in a concentration of 1 to 100,000 in water, will destroy typhoid and cholera germs in approximately four hours.





matter how hardened a criminal a man may be he can still feel deep in his heart the guilt of his crimes. This is so well known, that it is routine to remove from a criminal's cell all instruments with which he might kill himself.

The suicide is often just as unwilling to die as you or I would be. Men and women in hospitals suffering from the effects of poisons they have taken or wounds they have inflicted on themselves will beg their physicians to save them from death.

This apparent contradiction between the suicide's willingness to be murdered and his unwillingness to die is thought by some psychiatrists to be explained by the fact that it is impossible for all children and many adults to imagine themselves as no longer alive.

The angry child who tells his father, "You'll be sorry when I am dead," may picture the scene of his own funeral with weeping relatives and grieving friends, but always in his imagination he is there still in the midst of them, enjoying the spectacle of their discomfort. It is not possible for him to think of his own death as final and irreversible.

The most brutal war criminal may have the same childish way of thinking and may even kill himself in a spirit of revenge against the leaders that have brought him to disaster or against those who are bringing him to justice.

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PSYCHIATRY

Suicide Is Murder

It is not the desire to die that makes a man commit suicide, psychiatrists tell us; it is the desire to kill turned on the self.

► IN MOST people the desire to hold on to this life is so strong that the daily reports of suicides that come to us with the war news are completely puzzling, and yet there is an explanation.

Reports of Nazi leaders killing themselves in disordered Berlin. Reports of Japanese fanatical warriors riding robot bombs to their own death. Reports of German war criminals cheating justice through suicide. Reports of Japanese officers committing hara-kiri when faced with defeat.

Such news seems fantastic and almost incredible to those who love life.

But psychiatrists have explored through psychoanalysis the minds of attempted suicides—men and women who have been restrained from suicide only by the constant vigilance of friends and nurses. They are able to explain why it is that some men are willing to kill themselves. And why it is that a man can turn the weapon he has used to kill others and use it for his own self-murder.

It is not the desire to die that makes a man commit suicide, psychiatrists tell us; it is the desire to kill. Hate makes a man kill himself just as hate sometimes makes a man want to kill his neighbor. Usually, the suicide actually wants to kill someone else but is somehow cheated of his victim.

In the case of the defeated war lord

or the war criminal facing arrest, it is easy to see how circumstances prevent the accustomed outlet of the will to kill. In the case of the many civilian suicides that are a common occurrence all around us, it is often the individual's own conscience that keeps him from killing the person he hates.

The close link between murder and suicide is revealed by statistics. Murder rates and suicide rates always have an inverse relationship to each other. As one goes up the other goes down. And suicide rates tend to be at their lowest in time of war.

Any man may at some time feel a hatred bitter enough so that he wants to strike another man down, get rid of him. But in most men, such desires are balanced and kept in check by other, more friendly emotions. We don't have to act on such an impulse. It doesn't even worry us. We push it aside even before we are aware of it, and forget it.

But the suicide cannot get rid of his desire to destroy—to kill. If he can't kill someone else, he kills himself. So, suicide is really murder directed toward the self.

But, obviously, the man who kills himself must be willing to submit to murder. This is not quite the same, psychiatrists tell us, as wanting to die. Instead, it is the need for punishment to relieve an overwhelming sense of guilt. And no

ORDNANCE

British Bomb Travels Faster Than Sound

► NEW BRITISH rocket-propelled bombs that travel at a speed of 1,100 feet a second, greater than the speed of sound, have recently been developed, reports the British Information Service. The new bomb, dropped from a B-17 Flying Fortress, will tear through six thick layers of concrete before exploding.

Scientists of the British Admiralty, working in cooperation with the British Ministry of Supply, developed the powerful new bombs which ripped open Nazi E-boat shelters at IJmuiden, Holland, as if they had been made of paper. The job of testing the rocket-propelled bombs was carried out by the U. S. Eighth Air Force. No further details on the design or construction of the bomb are released.

Under reverse lend-lease, details of the design of the bomb have been made available to the U. S. Army Air Forces for possible use in their operations.

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PHYSIOLOGY

Effect of Radar's Waves Studied by Army and Navy

► RADAR, the radio echo device that can pick up targets through the clouds and spot airplanes miles away, may confuse homing pigeons and cause mild headaches among men who operate the device. Studies of the effects of microwaves and ultra-high frequency short waves upon pigeons and men are being made by Major Otto Meyer, the Army's top authority on pigeons, and Lt. Comdr. L. E. Daily, a Navy doctor.

While no evidence of physical damage has been discovered among the men who operate the Navy's radar devices, some of the men reported mild headaches and the feeling that their faces were flushed. These symptoms are reported to have ceased when they were more than four feet from the radio wave emissions of the transmitting equipment or the receiving antennae. These studies have disproved the theory that radar waves might cause baldness, and that radar emissions interfere with the ability of men to father children. Periodic physical examinations of radar operators are being continued, as is the practice of shielding the men from the radar waves.

The long waves of ordinary radio do not seem to bother pigeons, but they appear to be somewhat upset by the short radar waves. The Signal Corps is investigating the matter because officials hope the study may show why pigeons can find their way home.

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AERONAUTICS

Ten Men Fly in Tanks on P-38 Lightning Fighters

► FIVE MEN equals 300 gallons may sound like unusual mathematics; but five men can fit into each of two special wing tanks, each of about 300-gallon fuel capacity, and be flown for long distances underneath the wings of a P-38 Lightning fighter plane. The versatile warplanes were turned into troop and cargo transports to help solve a major combat problem encountered by the rapid American advances in the Pacific war. The task is to fly ground crews and equipment to newly captured airfields so that they can be enlarged to permit big planes to land.

The nose of the new personnel tanks is of transparent plastic, to give the occupants light and to counteract their

feeling of confinement during long hops. Structural strength to carry the weight of five men in the tanks, which are similar in size and shape to jettisonable fuel tanks, has been achieved by braces that leave the tank interiors free of obstructions. The rear section of each tank can be removed instantly, for a quick exit. Successful parachute jumps have been made from the wing tanks.

The personnel tanks are attached underneath the wings of the P-38 by the same drop shackles used for fuel tanks, bombs or torpedoes. No special attachments are necessary. Dropping a transport tank by mistake is made impossible by the installation of a safety device inside the tank. If it becomes necessary to drop the tanks in battle, the last man to bail out of the tank pulls the safety catch, which permits the pilot to jettison the empty container.

Air vents controlled from within the tank provide ample ventilation. Telephone connections permit conversation between pilot and tank occupants.

In addition to ground crews and cargo, the tanks can be used to help evacuate wounded soldiers from forward areas, and to carry paratroopers to their objectives on combat missions.

Science News Letter, May 12, 1945

ENGINEERING

Instrument Tells Pilot Of Engine Efficiency

► A NEW, but important, instrument has been added to the already confusingly crowded instrument panels of multi-engine aircraft. Known as the engine performance calculator, it merits its position because it can show the pilot or flight engineer by a glance at a plastic dial how any engine is performing. It eliminates complicated mathematical computations which, if not accurate, might result in the plane's failing to reach its destination, since the distance a multi-engine plane can fly depends largely upon the efficient operation of its engines.

Developed by H. B. Riggs, a flight engineer with Consolidated Vultee Aircraft Corporation, the calculator is set in accordance with engine speed and manifold pressure instrument indications. From this it computes such important information as fuel consumption, horsepower and cylinder pressure.

The idea for the calculator came to Mr. Riggs while he was trying to keep a malfunctioning patrol bomber engine in operation during a long flight over the Pacific.

Science News Letter, May 12, 1945

IN SCIENCE

ORDNANCE

Tanks on Road in Germany Have Rocket Launchers

See Front Cover

► SOME SHERMAN M4 TANKS, like the ones shown in the photograph on the front cover of this SCIENCE NEWS LETTER, operating on roads inside Germany, are equipped with rocket launchers on top.

The rocket-launching tubes were manufactured by General Electric in a peacetime home laundry equipment plant. The tubes were mounted by other manufacturers.

Science News Letter, May 12, 1945

GENERAL SCIENCE

Bureau of Science at Manila Totally Destroyed

► SENSELESS and suicidal fury of the trapped Japanese in Manila vented itself on scientific treasures as well as on historical and religious monuments. Word has reached Prof. E. D. Merrill, head of the Harvard University botany department and director of the Arnold Arboretum, that the Philippine Bureau of Science, of which he was once director, was completely destroyed.

The Bureau of Science, which was the principal center of research work in the Philippines, housed the most important scientific library in the islands, was publishing headquarters for the *Philippine Journal of Science*, and contained thousands of specimens of Philippine and other Asian plants, birds, mammals, insects and other animal forms.

Prof. Merrill states: "In the same general area important buildings that are totally destroyed or very badly damaged include the School of Medicine, the School of Hygiene and Public Health, the entire plant of the University of the Philippines, the Philippine General Hospital, the Weather Bureau and the Philippine National Library. These buildings, for the most part of modern reinforced concrete construction, were especially designed for their specific purposes. My informant states that in short the Japanese obliterated everything of scientific value, the loss of the important libraries being particularly serious."

Science News Letter, May 12, 1945

NEW FIELDS

ELECTRONICS

Bomber Gunners Can Talk Without Ceasing Fire

► DURING critical moments in air battle a slight movement of the thumb on the gun controls of a 50-caliber machine gun aboard a Flying Fortress now permits the gunner to switch on his throat microphone and talk to other members of the crew without ceasing fire on the enemy. The new gun-mounted microphone switch can be built with existing materials aboard a standard-equipped B-17 and saves about 40 feet of rubber covered electric cable.

Developed at the Cheyenne, Wyo., modification center of United Air Lines with the cooperation of the Air Technical Service Command, the method simplifies the layout of the intercommunication system in a bomber, saving up to 21,600 man-hours a year in speeding bombers to the fighting fronts.

The new microphone switch unit eliminates the connecting jack box for the microphone cable, and all its component parts. The switch is mounted on the gun adapter and wiring is run directly to the plane's master intercommunications system. Previously, five separate junctions, including jack boxes and intricate wiring, were required on each B-17.

Science News Letter, May 12, 1945

CHEMISTRY

Fruit Juice Concentrated Without Affecting Flavor

► CONCENTRATED and sterilized fruit juices can be prepared by a process that does not unfavorably affect their flavors, as happens sometimes in the current practices that involve heat treatment. U. S. Patent 2,374,219 has been issued on the new process to Royal Lee, of Milwaukee.

Instead of heating the juice to get rid of excess water, Mr. Lee freezes it. This converts most of the water into ice, at the same time trapping pulp and other undesired solids. The icy mass is then crushed, and the unfrozen, concentrated juice is centrifuged out.

The inventor proposes several methods for sterilizing the juice. One of the most ingenious is the addition of germ-killing chemicals like toluene or methanol. These

are poisonous, but they never reach the consumer, for they are also volatile, and they are evaporated out by gentle warming in a vacuum pan or a spray chamber before the final product is bottled or canned. The low-temperature evaporating step may be carried to the point of preparing a solid instead of a concentrated liquid or syrupy product.

Science News Letter, May 12, 1945

CONSERVATION

Regional Development Of Great River Basins

► DEVELOPMENT of the nation's great river basins on a regional basis, along lines suggested by the successful experiment in the Tennessee valley, was indicated as a possible way of escape from the threatening drift towards overcentralization in government and the growth of monopoly in business, in an address by Vice-Chairman Leland Olds of the Federal Power Commission before the Washington Academy of Sciences.

Mr. Olds pointed out that although authorization for a valley development originates with the national government, the actual work is carried out within the region, by its own people, and controls are immediate and on the spot, not in the hands of a remote bureau in Washington.

Benefits of a well-worked-out regional development are manifold, the speaker stated. Flood prevention and soil conservation go hand in hand for reforestation and contour-cultivation farming are relied on even more than the dams for preserving and regulating the water supply. This land-use improvement is almost inevitably followed by a rise in the standard of living within the region, as farming becomes at once more diversified and more productive.

Cheaper freight transportation results from the formation of man-made lakes and the improvement of stream channels. This has its reflection in the encouragement of manufacturing within the valley, with raw materials drawn from regional sources and finished products going first to regional markets. Power from hydroelectric plants at the dams, combined in some of the regions with steam-generated electricity from cheaply obtained coal, gives special encouragement to small business, because current is easily carried to practically any desired spot and concentration of manufacturing plants near power sites is no longer necessary.

Science News Letter, May 12, 1945

AERONAUTICS

Sweden Develops Air Force With American Planes

► LEADING all Scandinavia in the development of military and civilian flying, Sweden may become one of the important nations in postwar aviation. Most of the flying these days over Sweden is being done in American-built airplanes, and the outlook for the sale of our aircraft is good for the future.

Within a short time, 50 North American P-51 Mustang fighter planes, purchased for the Swedish air force by the Riksdag (Swedish Parliament), will be in service. Most of these planes, purchased at a cost of 34,000,000 kronor (\$8,500,000) will go to the Skane wing of the air force.

Sweden's own light-airplane manufacturing company, Skandinaviska, has recently announced the development of an all-wood sports monoplane. Known as the BHT-1A, it is thrust through the air at a maximum speed of 150 miles an hour by a 62 horsepower in-line engine built by Walter Mikren. It has a wingspan of 22.4 feet and a range of 560 miles.

Operating converted Boeing B-17 Flying Fortresses, Douglas DC-3 transports, and Junkers JU-52 transports, the Swedish airline A.B. Aerotransport now operates a service between Sweden and England. Passenger fare for the hop is a little less than \$175. After the war, this airline plans to resume its prewar operations, which were suspended in 1939, by extending service from Stockholm to Riga, Velikiye Luki and Moscow to the east, and from Stockholm to Malmö, Copenhagen, Amsterdam, Brussels, London and Paris to the southwest.

Science News Letter, May 12, 1945

PHYSICS

Choice of Colors in Fluorescent Lighting

► If you don't like the bluish-white light you get from the standard fluorescent lighting fixtures, there is a possibility of a choice of colors, in the invention on which patent 2,374,640 has been granted to Leslie R. Paul of Philadelphia. Around the fluorescent glow-tube he places a second tube, which bears longitudinal bands of various colors—is, in effect, a series of light filters. This can be turned by a remote-controlled low-speed motor, until the desired color effect is obtained; then the motor is stopped. A curved metal shield around the back of the color tube prevents undesired light-mixing.

Science News Letter, May 12, 1945

PSYCHOLOGY

Jobs for Returning G.I.'s

Servicemen are aided in selecting the best civilian job. Skill, aptitude and interest three most important considerations when choosing a permanent occupation.

By MARJORIE VAN DE WATER

► WHEN the serviceman has completed his share of the fighting and comes home, like the proverbial postman on a holiday his first thought is to get work to do. Even before he goes shopping for neckties and sportswear he begins to look around for a good job.

If he has been a year, or two years or more in service, he may have the disadvantage of not being in touch with people in industry or business. Jobs, industrial processes, and raw materials may have changed greatly during his long absence. If he left straight from high school, he may never have had the experience of finding and holding a job of any kind.

But he has many other advantages to outweigh these handicaps. He is free to choose the particular kind of job he would like and is fitted for—if he can find it. He is not tied down by habit or loyalty to a particular concern, or even, perhaps, to any particular town. He has had experience in service that may be of tremendous value to him in a new occupation. Chief of these advantages is very likely the freedom to choose.

Help in choosing wisely the special kind of work that will give him lasting happiness and satisfaction and a chance to grow on the job is given the returning serviceman by a group of psychologists and job experts in a new book just prepared by a committee of the National Research Council and published by the Infantry Journal-Penguin, *Psychology for the Returning Serviceman*.

Needs to Know Himself

In addition to the facts that a man looking for a job needs to know about business conditions, job opportunities, the reputation of employers, there are many things he needs to know about himself in order to pick the right kind of occupation.

There are, the specialists tell the returning serviceman, three things about any man that are especially important in matching him up with the kind of job that he would fit into well:

(1) Skill: What kinds of jobs do you

already know how to handle?

(2) Aptitude: What other kinds of jobs will you master fastest and best if you take time to get some special training?

(3) Interest: Out of the jobs you are already fitted for, or which you can readily learn, which job are you most likely to find satisfying?

On all of these points, the answer lies within you. It depends on your abilities, your experiences, your personality.

The experience of experts in job analysis of hundreds of occupations in military service and in civilian industry is ready to assist the man who wants to make use of his former civilian skills or the specialties he has learned in service. How it can help is explained in the book:

Occupations are compared with each other on the basis of five kinds of facts about each one:

(1) The operations to be performed in doing the work.

(2) Tools, machines and other aids used.

(3) Materials with which the work is carried out.

(4) Traits or special abilities required of the worker.

(5) Special hazards or working conditions.

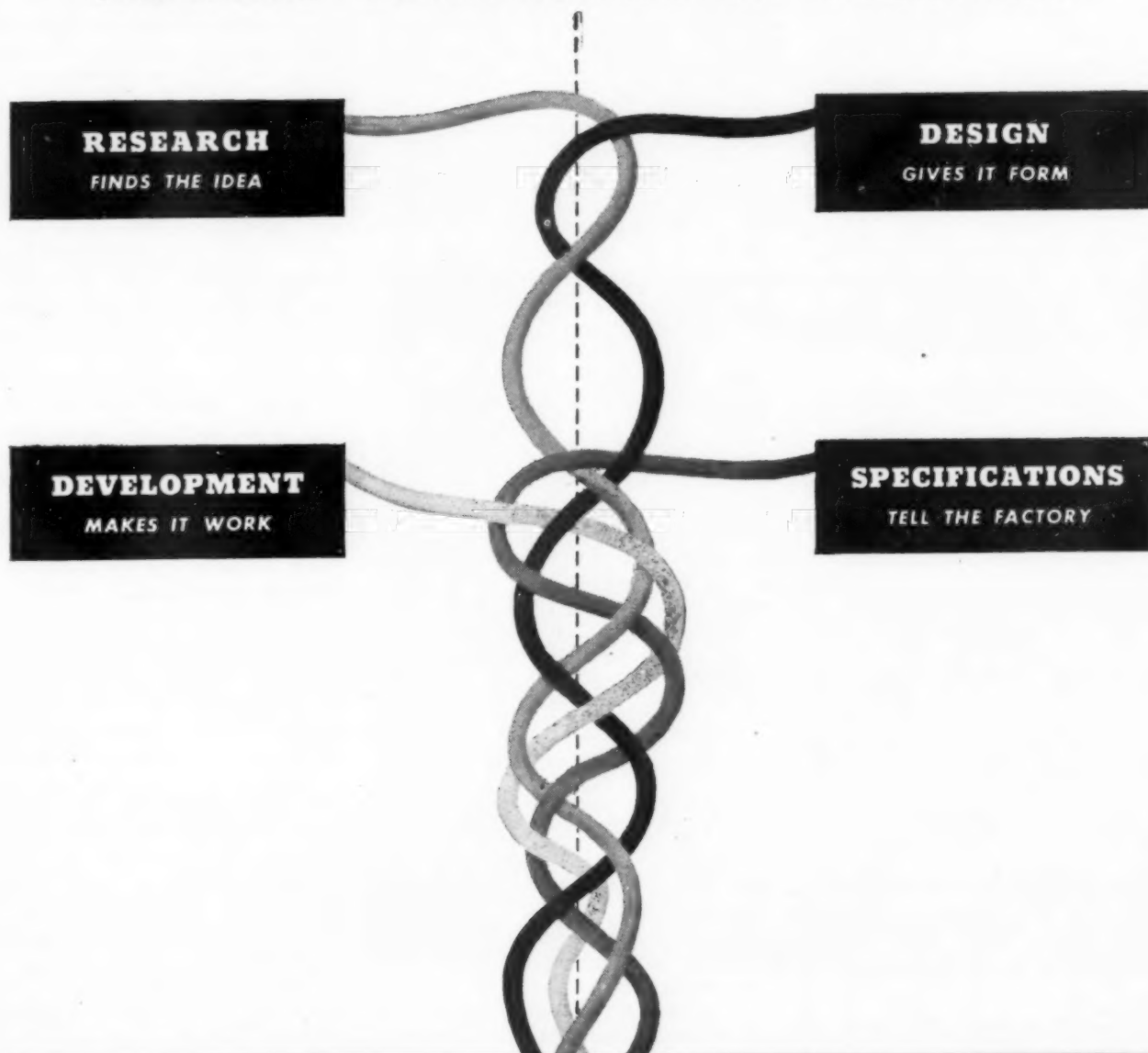
When jobs are analyzed in this way—and many thousands of them have been—the amount of similarity in skill between one job and another begins to appear. Then it is possible to gather jobs into “families” of closely similar skills. For each family of civilian jobs there may be a specialized military job or group of them that calls for much the same kind of man with the same kind of skills.

When you yourself went into the Service, it was decided what kind of job you could best do there. You were examined for this purpose, perhaps more than once, and your special skills were put down on your record. There may not have been any need, at the time you went in, for your special abilities, and there may have been a great need for infantrymen, artillerymen, and others for whom there are no corresponding workers in civilian life. But any time the need may have come up for your special skill—it would come



POSTWAR ABILITY—Seamen will find a use for their ability to make seafaring splices when it comes time to find a permanent job back home.

WEAVING COMMUNICATION HIGHWAYS



BELL TELEPHONE LABORATORIES

brings together the efforts of 2000 specialists in telephone and radio communication. Their wartime work has produced more than 1000 projects for the Armed Forces, ranging from carrier telephone systems, packaged for the battle-front, to the electrical gun director which helped shoot down robots above the White Cliffs of Dover. In normal times, Bell Laboratories' work in the Bell System is to insure continuous improvement and economies in telephone service.



Do You Know? From Page 298

Calcium phosphate added to table salt prevents caking.

The odor of *celery* seed is apparently due to derivatives of sedanolic acid.

Copper from Canadian mines is being imported into the United States at a rate of about 10,000 tons a month.

Rainwater collected in towns contains considerably more ammonia than that which falls in the country.

Oxyhydrogen, not oxyacetylene, welding torches are used for under-water cutting and welding on sunken ships and other objects.

Sprouting tests with over 300 soybean seed stocks showed that less than 10% produced sprouts suitable for human consumption.

Three promising insecticides, developed to replace or supplement the supply of rotenone and pyrethrum, are DDT, ground Mexican sabadilla seed with lime as an activator, and an abstract from Rynania, a South American shrub.

A deadly disease of the American elm known as *phloem necrosis*, not related to the Dutch elm disease, is destroying tens of thousands of trees in the Midwest; how it spreads, and how it may be controlled, have not been discovered.

up for hundreds of thousands of men—it was right there on your record and your Service would have found you and changed you to a new job. The knowledge of what job family each man had worked in as a civilian was a useful guide.

Now this process can work in reverse. Many men have acquired new skills in the Army and Navy. Each of these specialized skills has been analyzed in relation to the job families of civilian life. As a result, any man who has had a specialized military job can find out what kinds of civilian work he is now partly or fully trained to do.

Here are some examples:

(1) The *demolition specialist* in the Engineers. His work in the Army consists of demolishing obstacles built by the enemy, roads, bridges, bunkers, dug-outs and buildings. It may not seem as though there would be much use for such skills back home after the war, when we will be busy at the work of building roads and bridges instead of blowing them up. But a careful look at just how he goes about his mission of destruction shows that he does these things: he determines the size, type and methods of placing charges of explosives; assists in drilling the necessary drill holes; attaches fuses or electric wires to the charges; and finally explodes them from a position of safety.

By looking in the lists of civilian job families, we find that a man who has learned all this is set, with very little additional training, to become a slate shooter in a bituminous coal mine. The slate shooter drills holes into the slate roof of haulage ways and charges and sets off explosives there. Or he could become a blaster in such industries as construction, logging, or wood distillation and charcoal. There his job would be to break up or loosen hard or packed materials, or to remove obstructions by blasting.

(2) The *heavy machine gunner* in the infantry. The soldier with this job doesn't merely load, aim and fire a heavy machine gun; he also learns how to strip it and how to replace worn or damaged parts. Back home in the firearms industry there is an assembler who performs essentially the same job. There won't be many assemblers of machine guns needed after the war? Maybe not. But there are a lot of jobs that call for a skill just a little different from what the heavy ma-

chine gunner has acquired. With only brief training right on the job he might readily learn to assemble—or repair—such civilian articles as typewriters, washing machines, or even amusement park devices and pinball games.

(3) The *Fire-Control Man*. Chief and First Class, analyzes and repairs a wide variety of electrically controlled instruments used in the Navy. In addition he must be able to calibrate rangefinders. With additional training in the specific types of electrical instruments involved, he can become an electrical instrument repairman who repairs and calibrates thermostats, recording gages, and relays. As an office-machine repairman, he can learn to do inspection, repair and adjustment of adding, calculating and book-keeping machines. These office machines are the same kind of mathematical wizards, on a smaller scale perhaps, as the "calculators" in battleships.

Occupational Training

The G. I. Bill of Rights makes it possible for a returning soldier or sailor to obtain the training he needs to fit him for an occupation for which he has related skills. It also makes it possible for him to select an entirely new occupation or profession and develop skills he has never previously had. In case he decides to take advantage of the latter possibility, it is then important that he have the necessary aptitude to profit from the training and the necessary interest to make him persist in the long, difficult period of study.

There are tests that can be used to help a man discover his own talents and aptitudes. Usually, these must be given and interpreted by experts, but experts are available in the local offices of USES or in Veteran Counseling Centers in various parts of the country.

There are tests of interests, too, but the best clue to your interests is the knowledge of the kinds of work that have held your interest previously. If you have always liked to work with other people, you don't want to go into a job where you will be isolated.

If you enjoy work with machines or doing things with your hands, you may not find the same satisfaction in purely mental work at a desk. If it troubles you to have to make decisions and be responsible for the work of other people, you probably (Turn to page 302)



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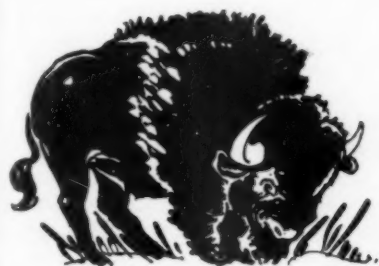
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Missing in Action

► **DISAPPEARANCE** of the bison we are accustomed to regard as a purely American tragedy—or as a tragedy very narrowly averted. Our grandsires slew them on the Plains by millions; our fathers saved a few scores or maybe hundreds of them; we see them now somewhat precariously on the increase.

But there is another species of bison, very similar to our own, that very few Americans ever saw or even heard of; and the last remnants of this species, native to Europe, have by now probably been wiped out, hapless victims of war.

The European bison, usually called the wisent, once ranged widely over the Continent and in adjacent parts of Asia. In the centuries just before the dawn of history it seems to have been regarded as a divine being, for the bearded, curve-horned winged human-faced bulls of ancient Mesopotamia appear to have been modeled originally on this animal.

Throughout ancient and medieval history, the wisent was a prime prize for hunters in the wilder parts of Europe. As wilderness dwindled and farmlands and cities increased, so went the wisent, until at the beginning of the present century there were only two sizable herds left. One, of somewhat over a thousand head, lived on the wooded slopes of the Caucasus mountains. The other, only about a third as numerous, was carefully kept on a wooded estate on the Baltic plain—within what were once the boundaries of Poland.

During the turbulent times that followed the first World War, the first herd utterly disappeared, and the second was cut down to a few dozen specimens. Nobody knows the story of the wisent hunts

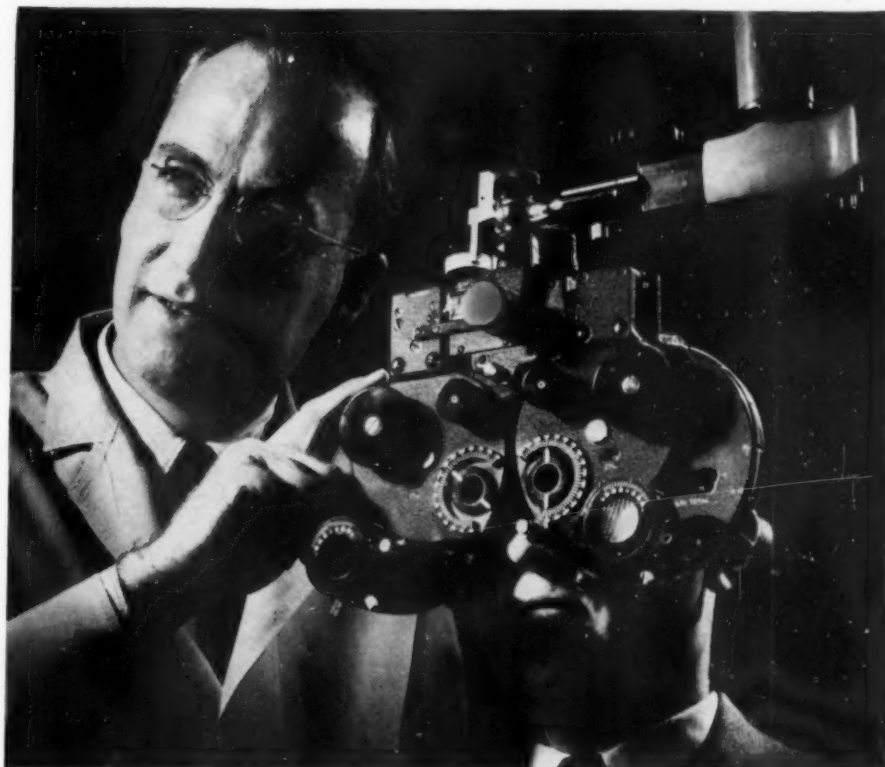
of those desperate days. Certainly, though, they were not the sport of kings and nobles; they were the meat-getting forays of hungry men with weapons in their hands. When the belly pinches hard, conservation lessons are easily forgotten.

The present war has surged back and forth over the range of the surviving herd in the northern country. Starvation tenfold worse than that of World War I has scourged the Baltic lands again and again; it would be unreasonable to expect any edible animal to be left alive in the forests there.

There were, in addition to these two herds, a few scattered specimens in European zoological gardens and in the private parks of noblemen. Attempts had been made to breed these animals, but for the most part these had not been very successful.

Probably one of the first postwar undertakings of zoologists, when there is again leisure for scholarly things, will be a census of what few wisent may be left alive. It will be a melancholy business.

Science News Letter, May 12, 1945



A Matter of Life and Death



During 1945, nearly a hundred thousand Americans will lose their lives—*victims of home-front accidents.*

Three times that many will suffer permanent disability. And the cause for many of these accidents will be faulty vision, or vision unsuited to its tasks.

You might never think of an eyesight examination as a matter of life and death. But the things you do at work, at home, on the farm, or in traffic—the hazards of everyday living—require efficient, alert eyesight. Keen vision is safe vision; reduction of accidents is a matter of national urgency.

The only way you can be sure about your

vision is to consult an ophthalmologist or optometrist for a complete visual analysis. If correction is called for, you can depend on the professional and technical skills of the optometrist or optician to provide modern attractive eyewear.

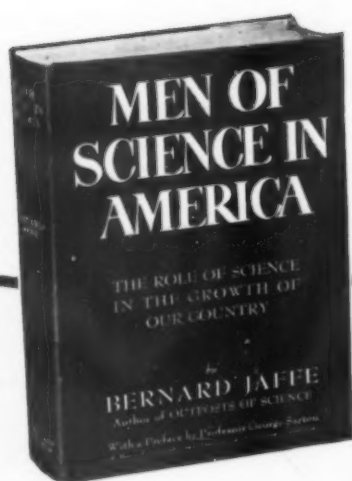
Play safe—be sure your vision is right. Bausch & Lomb Optical Co., Rochester 2, New York.

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by scientist and
non-scientist
alike"**

—The Scientific Monthly

"A series of lively personal sketches and a useful, rapid picture of what is going on in such fields as general physics, genetics, astronomy and atomic research."

—The New Republic

"Mr. Jaffe gives us more than a series of penetrating biographies. We have not only pictures of exceptional scientists in action, but a history of science in biographical form. Though the men selected were not aware of their social importance, they influenced society profoundly. This social note vibrates through the book, and stands as an example of the way biographies should be written."

—Book-of-the-Month Club News

"A pioneer in an important field. Mr. Jaffe has succeeded in stating an outline of American science and in describing its continuities and interrelationships, and is, so far as I know, the first historian who has ever done so. He has written a book which has long been needed."

—New York Herald Tribune

Professor George Sarton of Harvard has written the foreword. Contains 600 pages, 28 plates, and 25 text diagrams. Third printing. Price \$3.75

SIMON AND SCHUSTER, Publishers

CHEMISTRY

Plastic-Coated Fabrics

► **DAINTY** white gloves that may be washed under a faucet while still on the hands, and damask linen tablecloths from which spilled gravy may be wiped with a damp rag, are probabilities of the future if the fabric in the article is coated with a transparent plastic that does not materially alter its appearance or feel. This coating is now in extensive use in military fabrics but soon will be available for civilian purposes.

Application of plastics to the outer surfaces of fabrics is not new, but where employed, as in making kitchen oil cloth and rubberized raincoats, they changed the appearances and feeling of the cloth. The new method is with the use of vinyl butyral, and the invisible coating is so thin that its presence can hardly be detected.

Scientists of the Monsanto Chemical Company were assigned the job early in the war of finding materials with which to replace natural rubber for waterproofing and to extend the life of textiles. Intensive and concentrated research was begun even before the outbreak of the war closed off the nation's supply of natural rubber.

They turned to vinyl butyral, a plastic previously used almost exclusively as an interliner material in automobile safety glass. This material was available, and was quickly modified to meet textile requirements and those of rubber processing methods. It is now suitable for many uses, not only in coating fabrics, but also in the form of a free film, free in the sense that the plastic is used alone and not attached to a fabric.

Science News Letter, May 12, 1945

From Page 300

should not try to be an executive—at least not right away.

And other interests, besides your particular occupational interests, may be important in picking the job that is best for you.

You need to be sure your pay will be adequate, the specialists warn. For most men that is a very important consideration.

Yet pay is almost never the whole story. It is not even always the most important point. You can have fine pay on a job and at the same time be very unhappy in it. There are many other things you will want to ask about a job besides how much it pays—always supposing that you are lucky enough to have much choice about which job to take. Here are some of the main questions:

You will want to know about getting back and forth from work. You will be interested in what kinds of places are available for you to live in. It is important to learn whether your work is always between set hours or whether you have to work special shifts and do a great deal of overtime. The cleanliness, lighting and ventilation of the place where you work may be important to you.

You may enjoy working with women, or you may hate it; that can be very important, especially if you are likely to

have a woman as supervisor or employer. If you are sociable, you may want to know whether the particular company demands constant attention to the work, so that you will not be able to talk while you work. If you smoke, you may want to know whether smoking is permitted during work hours. If the job is in a plant that provides music during work hours, that may be something you will enjoy or dislike very much.

Health benefits, medical attention, and retirement plans are important in giving you a feeling of security. For security, some men will choose a government job even if they would otherwise have preferred private industry.

Any of these things may seem of fairly small importance at the time of taking a job. Then the kind of work and your qualifications for it, plus the amount of pay offered may seem to be the main things.

But if you hope to stay in the same place for a period of years, these other sides of the job will come to seem more and more important. They are what make a job a good job.

Science News Letter, May 12, 1945

The U. S. Mint turned out during 1944 approximately 8,000,000 coins for more than a score of friendly nations.

Books of the Week

► **BANDAGING CUT FINGERS** or more serious injuries will be easy for the layman who learns the art from the excellent illustrations and clear directions in **TECHNIQUE OF BANDAGING AND SPLINTING**, by Maj. Arthur M. Tunick, M.C., AUS, (*Essential Books*, \$3), although the author indicates that medical students and nurses also need a handbook of this type.

Science News Letter, May 12, 1945

► **MAKE YOUR OWN** wind tunnel, radial engine model and demonstrate ice formation on aircraft by following simple directions given in **DEMONSTRATIONS AND LABORATORY EXPERIENCES IN THE SCIENCE OF AERONAUTICS**, prepared by the Civil Aeronautics Administration and the American Council of Education (*McGraw*, \$2). For teachers and students in aeronautics, this manual gives illustrated, step by step instructions on how to perform 68 aviation demonstrations using inexpensive, simple, and easily available materials and supplies. Demonstrations cover aerodynamics, power plants, meteorology, navigation, communications and other fields.

Science News Letter, May 12, 1945

► **IN A TECHNICAL** book for students and engineers, **ADSORPTION**, by C. L. Mantell, a successful attempt has been made to correlate the practical, commercial, and engineering aspects of this important subject. The author had the help of a considerable number of men, including plant operators, material processors, and equipment producers. (*McGraw*, \$4.50.)

Science News Letter, May 12, 1945

► **THE HOME** workshop, and how to make things for the home in wood and metal, are discussed in readable terms in **IT'S FUN TO MAKE IT YOURSELF**, edited by Stacey Maney. Many hundreds of illustrations and working drawings are included. (*Journal of Living Publishing Corporation*, \$2.95.)

Science News Letter, May 12, 1945

► **A VAST** amount of valuable and timely information about the thousands of islands in the Pacific is contained in the **PACIFIC ISLANDS HANDBOOK**, 1944, by R. W. Robson. It covers matters having to do with administration, anthropology, populations, his-

tory, resources, health and industries. It is an American edition of the **PACIFIC ISLANDS YEARBOOK** published in Australia from 1932 to 1942. (*Macmillan*, \$4.)

Science News Letter, May 12, 1945

► **TWO CENTURIES** of the development of the American iron industry into the steel industry, from the colonial iron furnace at Principio, Md., to the great steel mills of Wheeling, West Virginia, are interestingly reviewed in **PRINCIPIO TO WHEELING, A PAGEANT OF IRON AND STEEL**, by Earl Chapin May. The well-illustrated book is intended for the layman. (*Harpers*, \$3.)

Science News Letter, May 12, 1945

Just Off the Press

AMERICAN PLANNING AND CIVIC ANNUAL, Harlean James, ed.—*Amer. Planning and Civic Assn.*, 178 p., illus., \$3. A record of recent civic advance in the fields of planning, parks, housing, neighborhood improvement and conservation of national resources, including the addresses delivered at the Citizens Conference on Planning, held on the fortieth anniversary of the organization of the American Civic Association at St. Louis, Missouri, on June 14, 15, 16, 1944.

BIOMETRICS BULLETIN, vol. 1, no. 1—*The Biometrics Section, American Statistical Assn.*, 12 p., single copies, 60c; annual subscription, \$3. The first issue of a new magazine. Published 6 times a year.

THE CHEMISTRY OF ACETYLENE—Julius A. Nieuwland and Richard R. Vogt—*Reinhold*, 219 p., illus., \$4.

OF LIFE AND LOVE—Emil Ludwig—*Philosophical Lib., Inc.*, 208 p., \$3.

THE ROCKEFELLER FOUNDATION, a Review for 1944—Raymond B. Fosdick—*The Rockefeller Foundation*, 63 p., paper, illus., free.

SARGENTIA, no. 5, **FRAGMENTA PAPUANA (OBSERVATIONS OF A NATURALIST IN NETHERLANDS NEW GUINEA)**—H. J. Lam—*Arnold Arboretum of Harvard Univ.*, 196 p., paper, illus., \$3.

Science News Letter, May 12, 1945

SOCIOLOGY

Try, Try Again Is Sign Of Social Development

► **WHETHER** a person wants to try again to do something in which he has failed or prefers to repeat a task he has already done successfully may indicate his stage of social development, Dr. Saul Rosenzweig of Western State Psychiatric Hospital states. (*Journal of Genetic Psychology*, March)

Normally, children under seven years of age prefer to repeat success, while those over 11 like to have another try at things at which they have failed, pre-

sumably to vindicate themselves, Dr. Rosenzweig found. Children between these ages vary according to their individual personality.

But adults, if they are mentally ill or maladjusted also tend to prefer to repeat only those tasks in which they have already succeeded.

When Dr. Rosenzweig tested 45 soldiers with various mental disorders, he found that about one-third resembled young children in their lack of drive toward self-vindication.

The tasks used in the test were simple puzzles. The subjects were allowed to complete one but not the other puzzle, and then given the choice of which, if either, they would prefer to repeat.

Of a group of 70 normal Worcester school boys and girls, between the ages of four and 14, slightly more than half preferred the successful puzzle. The average age of those who wanted to repeat their previous successful experience was seven years: 11 was the mean age of the group who wanted to justify themselves. Some weren't interested in trying either again.

Science News Letter, May 12, 1945

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• New Machines and Gadgets •

✿ **HARVESTING** basket has a vertical, adjustable rod through its center with a handle at its top and pointed lower end so that it may be stuck in the ground. A thumbscrew holds the basket at any desired height. Both hands are left free to pick fruit without stooping to place it in the container.

Science News Letter, May 12, 1945

✿ **REVERSIBLE NECKTIE** has one design or material on one side and a different material on the other, and is worn with either side showing. The two materials are laid facing each other with the lining on top and all machined-screwed together, then turned right side out.

Science News Letter, May 12, 1945

✿ **FLASHLIGHTS**, which emit light when pointed slightly downward and automatically go out when pointed slightly above a horizontal position, contain a gravity-operated mercury switch. The drop of mercury in the switch breaks the circuit by flowing downward when the flashlight is tipped upward.

Science News Letter, May 12, 1945

✿ **NEW RUBBER CEMENT**, used for bonding metals, wood, plastics and ceramic materials to themselves or to each other, forms a strong union when applied under heat and pressure. Wood bonded to aluminum was torn off, since the bond was stronger than the wood itself.

Science News Letter, May 12, 1945



✿ **HOME HEATING** in postwar days may come from hot-water pipes hidden behind cast-iron baseboards to replace the ordinary wood baseboards, and painted to match the woodwork in the room. It is a type of the new radiant heating, and in tests seems satisfactory. The picture shows the so-called "radiant baseboard."

Science News Letter, May 12, 1945

✿ **SKETCHING** outfit, to replace the

familiar artist's easel, is a folding table with a shallow drawer to hold the needed paints and brushes, and a hinged easel that opens upward. The artist sits on the stool-high table, facing the easel, with the open drawer between his knees.

Science News Letter, May 12, 1945

✿ **SPOON-SHAPED** nozzle, attached to the spout of a watering can, delivers a wide-spread, fine spray to plants. One end is cylindrical to slide over the spout; the spoon part that causes the spray is about three times the width of the spout.

Science News Letter, May 12, 1945

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 258.

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